AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS

1-17 **(Canceled).**

18. **(New)** An improved method for assigning one or more spreading sequences to a user of a multi-carrier code division multiple access transmission network at a transmitter of said network, each element of said spreading sequences being multiplied by a data item to be transmitted, and then transmitted on a corresponding sub-carrier, wherein the improvement comprises the steps of:

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assigning to the user at least one spreading sequence, and

utilizing a minimization function to minimize the interference caused between the at least one sequence assigned to the user and a predetermined set of spreading sequences assigned by the transmitter.

19. **(New)** A method according to claim 18 wherein the predetermined set of spreading sequences includes the set of

sequences which are used by the network at the instant of assigning.

20. **(New)** A method according to claim 18 wherein the predetermined set of spreading sequences includes the set of sequences which are potentially usable after the instant of assigning.

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21. **(New)** A method according to claim 18 wherein said set of spreading sequences includes a favored set of spreading sequences.

22. **(New)** A method according to claim 1 which further includes allocating, from among all the spreading sequences available at the instant of the assigning, the spreading sequence $c^{(i)}$ which minimizes a function $J^{(j,\Omega_k)}$ representing the interference between the spreading sequence $c^{(i)}$ and the spreading sequences of the predetermined or given set, the sequence of rank i thus being assigned if this rank i verifies the following relationship:

$$i = \arg_{j} \min_{j \in \Omega_j, j \notin \Omega_k} \left[J^{(j,\Omega_k)} \right]$$

where Ω_k is the set of the indices of the sequences of the predetermined or given set and Ω_j is the set of the indices of the available sequences.

23. **(New)** A method according to claim 18 wherein each user is assigned a spreading sequence so as to take into account the transmission quality envisaged for the spreading sequence.

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24. **(New)** A method according to claim 23, wherein the user is assigned a spreading sequence $c^{(i)}$ which minimizes the cost function $J^{(j,\Omega_k)}$ with the spreading sequences $c^{(k)}$ of a predetermined or given set of sequences of index k belonging to a set $\Omega_{k,}$ to a user desiring an average transmission quality, the spreading sequence $c^{(i)}$ which gives an average value to the cost function $J^{(j,\Omega_k)}$ with the spreading sequences $c^{(k)}$ of a predetermined or given set of sequences of index k belonging to a set $\Omega_{k,}$ and to a

user whose transmission quality can be a minimum, a spreading sequence $c^{(i)}$.

25. **(New)** A method according to claim 22, characterized in that the cost function $J^{(j,\Omega_k)}$ representing the interference between the spreading sequence $c^{(i)}$ and sequences $c^{(k)}$ of indices k belonging to a set $\Omega_{k,}$ is defined as being equal to the maximum value taken by a function $D^{(j,k)}$ representing the degradation of the transmission which is induced as a result of the interference between the spreading sequence $c^{(j)}$ and the spreading sequence $c^{(k)}$:

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$$J^{(j,\Omega_k)} = \max_{k \in \Omega_k} D^{(j,k)} .$$

26. **(New)** A method according to claim 22 wherein the cost function $J^{(j,\Omega_k)}$ representing the interference between the spreading sequence $c^{(j)}$ and K sequences $c^{(k)}$ of indices k belonging to a set $\Omega_{k,}$ is defined as being equal to the average of the values taken by a function $D^{(j,k)}$ representing the degradation of the transmission which

is induced as a result of the interference between the spreading sequence $c^{(j)}$ and the sequence $c^{(k)}$:

$$J^{(j,\Omega_k)} = \frac{1}{K} \sum_{k \in \Omega_k} D^{(j,k)} .$$

27. **(New)** A method according to claim 25 wherein the degradation function $D^{(j,k)}$ is defined as follows:

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$$D^{(j,k)} = E\left[\left(\sum_{m=1}^{M} h'^{(j)}_m c^{(j)}_m c^{(k)}_m\right)^2\right] \quad or \quad D^{(j,k)} = E\left[\left(\sum_{m=1}^{M} h'^{(k)}_m c^{(j)}_m c^{(k)}_m\right)^2\right]$$

where E is the mathematical expectation, M the number of sub-carriers used in the MC-CDMA transmission system and $h'^{(j)}_m$ is the apparent response of the transmission channel in view of an equalization process implemented in the receiver, the response for the frequency of the sub-carrier of rank m and for the receiver of the user of the sequence of rank j.

28. **(New)** A method according to claim 25 wherein the degradation function $D^{(j,k)}$ represents the small size of the high-frequency components of a sequence $X^{(j,k)}$ of N elements resulting from

the element-by-element product of the sequence $c^{(j)}$ and the sequence $c^{(k)}$.

29. **(New)** A method according to claim to claim 28 wherein the value of the degradation function $D^{(j,k)}$ is given by the application of a Fourier transform to the sequence $X^{(j,k)}$ of N elements resulting from the element-by-element product of the sequence $c^{(j)}$ and the sequence $c^{(k)}$.

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30. **(New)** A method according to claim 28 wherein the value of the degradation function $D^{(j,k)}$ is given by the number of {+1,-1} and {+1,-1} transitions appearing in the sequence $X^{(j,k)}$ of N elements resulting from the element-by-element product of the sequence $c^{(j)}$ and the sequence $c^{(k)}$.

31. **(New)** A method according to claim to claim 18 wherein the method is implemented dynamically and includes re-assigning during transmission, at predetermined instants, the K-Q sequences still necessary for the different transmissions, K being the number of spreading sequences used previously before Q sequences from among K

(Q<K) were made available.

32. **(New)** A method according to claim 31 which further includes;

calculating the cost functions $J^{(j,\Omega_k)}$ for any spreading sequence $c^{(j)}$ where j belongs to the set Ω_Q of the indices of the sequences made available,

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calculating the cost functions $J^{(j,\Omega_k)}$ for any spreading sequence $c^{(k)}$ where k belongs to the set Ω_{K-Q} of the indices of the sequences still used,

as long as there exists one or more spreading sequences of index $j_o \in \Omega_Q$ and one or more spreading sequences of index $k_o \in \Omega_{K-Q}$ such that $J^{(j_o,\Omega_k)} < J^{(k_o,\Omega_k)}$ de-allocating the sequence $c^{(k_M)}$ defined by:

$$k_M = \underset{k}{\arg} \max_{k \in \Omega_{K-Q}} \left[J^{(k,\Omega_k)} \right],$$

and allocating instead the sequence $c^{(k_M)}$ defined by:

$$k_m = \underset{k}{\arg} \max_{k \in \Omega_Q} \left[J^{(k,\Omega_k)} \right].$$

33. **(New)** Assigning method according to Claim 31, which

further includes;

calculating the cost functions $J^{(j,i_0)}$ for any spreading sequence $c^{(j)}$ where j belongs to the set Ω_Q of the indices of the sequences made available,

calculating the cost functions $J^{(k,i_0)}$ for any spreading sequence $c^{(k)}$ where k belongs to the set Ω_{K-Q} of the indices of the sequences still used,

as long as there exists one or more spreading sequences of index $j_o \in \Omega_Q$ and one or more spreading sequences of index $k_o \in \Omega_{K-Q}$ such that $J^{(j_o,i_o)} < J^{(k_o,i_o)}$, de-allocating the sequence $c^{(k_M)}$ defined by:

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$$k_M = \arg_k \max_{k \in \Omega_{K-Q}} \left[J^{(k,i_o)} \right],$$

and allocating instead the sequence $c^{(k_m)}$ defined by:

$$k_m = \arg_k \min_{k \in \Omega_Q} \left[J^{(k,i_o)} \right].$$

34. **(New)** A transmitter for a Multi-Carrier Code Division Multiple Access transmission system, of the type having means for multiplying a user data item by each of the elements of at least one

spreading sequence and means for modulating on a sub-carrier each of the signals originating from the multiplication means, wherein the improvement comprises:

a2 means for assigning to the user at least one spreading sequence, and

means for utilizing a minimization function to minimize the interference caused between the at least one sequence assigned to the user and a predetermined set of spreading sequences assigned by the transmitter.